

NOTES ON SOUTH AUSTRALIAN MARINE MOLLUSCA,
WITH DESCRIPTIONS OF NEW SPECIES.—PART V.

By JOS. C. VERCO, M.D. (Lond.), F.R.C.S. (Eng.).

[Read May 7, 1907.]

During the last session in Adelaide of the Association for the Advancement of Science, Mr. Hedley, of the Australian Museum in Sydney, kindly examined, with me, a number of my South Australian shells, and has since compared them with types in the Sydney Museum. We have thus been able to identify several of our forms. He also took with him all my Pteropods, and returned them named. A trip to the three bays in the South-East of our State—MacDonnell Bay, Guichen Bay, and Lacepede Bay—provided a quantity of minute beach material, which has already proved to be very rich in novelties, and has provided examples of larger shells in such excellent condition as to allow one to speak more certainly upon some previously questionable points.

Family PATELLIDÆ, Guilding.

Genus PATELLA, Linnæus.

P. ustulata, Reeve.

This species was found in abundance by me this year on the rocks at Western Beach, Robe. Here and at MacDonnell Bay it was seen in better condition and in greater numbers on the vertical face of the rocks, just above low water, than on the submerged reefs, less eroded and less encrusted. A variant was taken at Robe, suggesting at first a new species, a rather narrow oval shell, with 22 to 24 large, rounded, close-set radial costæ, with one feeble or no interstitial riblet. They were found, however, to merge insensibly into the usual forms.

P. hepatica, Pritchard & Gatliff.

At Beachport, on the shore, several dead shells were collected, some quite typical, with oblong oval border, and crowded, fine, equal radial riblets. But, though retaining this outline, their sculpture gradates into the sub-distant costæ with intermediate riblets of *P. ustulata*, Rve. In one individual the sculpture is that of *P. hepatica* until it is 18 mm. long, when 24 valid white scaly ribs arise. Another shell, measuring 41 mm. by 36 by 20, is provided only with uniform crowded finely-scabrous riblets, combining the sculpture of *P. hepatica* with the shape and size of the largest of our *P. ustulata*. Every gradation, too, can be traced between the oblong-oval

and the roundly elliptical forms. The opinion expressed in Trans. Roy. Soc. South Aust., 1906, vol. xxx., p. 207, as to the identity of these two species is confirmed.

Genus *HELACIONISCUS*, Dall.

H. limbatus, Philippi.

Patella limbata, Philippi, *Abbild. und Besch. Conch.*, vol. iii., p. 71, pl. iii., f. 2, 1849; Reeve, *Conch. Icon.*, vol. viii., pl. xiii., f. 29, a, b, 1854; Angas, *Proc. Zool. Soc. Lond.*, 1865, p. 185; Ten. Woods, *Proc. Roy. Soc. Tasmania*, 1877 for 1876, p. 48; also 1879 for 1878, p. 45; Pritchard & Gatliff, *Proc. Roy. Soc. Vict.*, vol. xv. (new series), part 2, p. 192, 1903.

Patella (Helcioniscus) limbata, Phil., Pilsbry, in Tryon's *Man. Conch.*, 1891, vol. xiii., p. 143, pl. lxxi., f. 53 to 56, and pl. xvii., f. 28, 29.

Hab.—That of the type is given by Philippi as "New Holland" (Largilliert); Reeve records it from "Signet Bay, North Australia: Dring"; Angas, "Port Lincoln, South Australia"; Ten. Woods, "Southport, Tasmania"; Pritchard and Gatliff, "Cape Otway, Victoria." It has been taken at the Neptunes and Thistle Island, and in Spencer Gulf by Dr. Torr: on Yorke Peninsula by Mathews; at Encounter Bay by myself. I did not find it at Kingston, Robe, Beachport, or MacDonnell Bay.

Dim.—The largest dimensions given by Ten. Woods are 71 mm. by 64 by 32; but one from Yorke Peninsula measures 77 by 64 by 33.

Philippi, Reeve, Angas, Pilsbry, and Pritchard & Gatliff regard it as a good species: but Ten. Woods in 1878 wrote: "I regard this shell as a variety, or not even a variety, of the preceding (*P. tramosericus*, Martyn). The somewhat broader ribs may distinguish it." Tate & May in their census of the Marine Moll. of Tasmania, *Proc. Linn. Soc. of New South Wales*, vol. xxvi., 1901, p. 141, accept this view. Among the shells collected by Dr. Torr in Spencer Gulf is a facsimile of Philippi's type figure, in shape, size, colour, and erosion. Others, up to 55 mm. in length, have the apex perfect. Instead of being yellowish they may be of a deep salmon tint, and instead of 32 may have only 22 ribs, much broader than in the type, and thus differ still more than this from *P. tramoserica*, Mart. On the other hand, a unicoloured salmon-tinted shell from Beard Peninsula, West Coast of South Australia, in its ribbing comes between both species; and a small shell from Encounter Bay in its shape and flat rounded ribs approaches *H. limbatus*, and yet in its 44 ribs and red, yellow, and black radial markings is allied to *H. tramosericus*. I lean to the view of identity with extreme variation; but my series is not very large, and does not furnish such gradations as to warrant an absolute conclusion.

Genus *NACELLA*, Schumacher.

N. parva, Angas.

Hab.—One example dredged dead at 62 fathoms N.W. of Cape Borda: several found in shell sand, Guichen Bay, which is its most easterly known station.

N. crebristriata, Verco.

Hab.—The type locality was not exactly known, but was judged to be Moonta Bay. I have since taken several examples in shell-sand at Guichen Bay. There are variations from the type. The anterior slope may be sub-convex, or it may be slightly excavated immediately below the apex. Some are more compressed laterally than the type, others tend more to an elliptical outline. There may be about sixteen equidistant pink radii, or the shell may be uniformly of a light pink tint.

N. stowæ, Verco.

Hab.—Guichen Bay beach, in shell-sand. No variations from the type.

Family *ACMÆIDÆ*, Philippi.

Genus *ACMÆA*, Eschsholtz.

A. flammea, Quoy & Gaimard.

Patelloidea flammea, Q. & G., Voy. de l'Astrolabe, Zool., vol. iii., 1834, p. 534, pl. lxxi., f. 15 to 24.

My observations on this variable shell in Trans. Roy. Soc. South Australia, vol. xxx., 1906, p. 212, were almost entirely based on dredged shells. A collection since gathered from the rocks at Robe, Beachport, and MacDonnell Bay enables me to add something further. As a rule the exposed shells are much more eroded, and their ribs are ruder and less numerous, and they are of the *A. jacksoniensis*, Reeve, form rather than of the *A. crucis*, Ten. Woods. Many of these were much narrowed anteriorly, so as to be really oval or egg-shaped instead of uniformly roundly elliptical. Some of the smaller individuals tend also to be pyramidal rather than conical, with four obsolete angles occupying the situation of the intervals between the arms of the Maltese cross. None were found with radial ribbing so fine as presented on some of the dredged specimens.

In most the cross was plainly visible, or indistinctly when held up to the light. One showed the anterior and both lateral arms fused into one mass, and the posterior arm very broad, so as to give a quite black shell with two narrow dead white radii at the postero-lateral parts. Another was a black shell with four narrow white radii. Another had five

equal black arms, due to a white wedge in the centre of a wide posterior black patch. Another common peculiarity was that the white concentric band inside, just above the articulated dark and white border, had two radial extensions to the margin in the postero-lateral regions; and these, quite marked in the shells *with* the cross, were frequently distinct in those *without* the cross, and enabled the species to be certainly recognized.

Family COCCULINIDÆ, Dall.

Genus COCCULINA, Dall.

C. coercita, Hedley.

Cocculina coercita, Hedley, Records of the Austr. Mus., vol. vi., part 4, 1906, p. 289, pl. liv., f. 1, 2.

Type loc.—80 fathoms off Narrabeen, New South Wales; also 300 fathoms east of Sydney (Hedley). South Australia, one example at 130 fathoms off Cape Jaffa (Verco).

Family VERMETIDÆ.

Genus VERMICULARIA, Lamarck, 1799.

V. nodosa, Hedley.

Vermicularia nodosa, Hedley, Records of the Austr. Mus., vol. vi., part 4, 1906, p. 292, pl. liv., f. 8.

Type loc.—80 fathoms off Narrabeen, New South Wales.

Dredged, 55 fathoms off Cape Borda, many; 150 fathoms off Beachport, one (Verco).

Family TRITONIDÆ.

Genus CYMATIUM.

C. kampilum, Watson.

Nassaria kampilum, Watson, Jour. Linn. Soc. Lond., vol. xvi., p. 594.

Nassaria kampilum, Watson, Chall. Rep., vol. xv., 1886, p. 405, pl. xiv., f. 12. *Type locality*, "Off Sydney, 410 fathoms, green mud." *Lampusia nodocostata*, Tate & May, Trans. Roy. Soc., S. Austr., 1900, vol. xxiv., p. 90; *type locality*, east coast of Tasmania, 2 examples (W. L. May); also Proc. Linn. Soc. N.S. Wales, 1901, vol. xxvi., p. 355, pl. xxiii., fig. 2; *Lotorium nodocostatum*, Tate & May, Kesteven, Proc. Linn. Soc. N.S. Wales, 1902, vol. xxvii., pp. 463, 479, f. 1, 4; *Cymatium kampilum*, Watson, Hedley, Records of the Austr. Mus., vol. vi., part 3, p. 213.

The species was taken by Mr. Hedley and others in abundance at 300 fathoms, off Sydney, and with this material he was able to identify the Tasmanian shell with Watson's species. In my dredging off Beachport and Cape Jaffa I took more than 750 examples, mostly immature, and all dead. They ranged from 90 fathoms to 300; and were most

common at 110, 130, and 200 fathoms. They appear to live at some greater depth, for the living example which formed the Challenger type was taken at 415 fathoms. Considerable variation from the type is seen. Its proportions are 1.67 inches long and .8 broad, but these may be 1.45 and .6, giving a much more slender shell. Some individuals are more solid than others, and these usually have bolder sculpture, in axial costæ and spiral liræ. This is very noticeable in the whorls following the protoconch; the first may be merely granulated, and the second show only obsolete radial and spiral sculpture. When there is any ornament it is seen as yellow-brown spiral bands between the raised liræ, generally three in the spire-whorls and about six on the body-whorl, the last two or three tending to fuse. They are interrupted by the varices, which remain white.

Family SIPHONARIIDÆ.

Genus SIPHONARIA, Sowerby, 1824.

S. diemenensis, Quoy & Gaimard.

S. diemenensis, Quoy & Gaimard, Voy. de l'Astrolabe, Zool., vol. ii., p. 327, pl. xxv., figs. 1-12, 1833; Reeve, Conch. Icon., vol. ix., pl. i., fig. 1, 1856; Ten. Woods, Proc. Roy. Soc. Tasmania, 1877, pp. 56 to 58; and 1878, p. 46; Adcock's Handlist of Aquatic Moll. of South Australia, 1893, No. 457; Tate & May, Proc. Linn. Soc. N.S. Wales, 1901, vol. xxvi., part 3, p. 418; Pritchard & Gatliff, Proc. Roy. Soc. Vict., 1903, vol. xv. (n.s.), part 3, p. 220.

S. denticulata, Quoy & Gaimard, *op. cit.*, p. 340, pl. xxv., figs. 19, 20; Reeve, *op. cit.*, pl. i., fig. 4; Ten. Woods, *op. cit.*, 1877, p. 54, 56, and 1878, p. 47; Adcock, *op. cit.*, No. 454.

S. scabra, Reeve, Conch. Icon., vol. ix., pl. i., fig. 2.

Type loc.—Of *S. diemenensis*, D'Entrecasteaux Channel, Tasmania (Quoy); of *S. denticulata*, "The southern part of New Holland at Western Port, and probably also at King George's Sound" (Quoy); of *S. scabra*, Port Jackson (Reeve).

Obs.—Tate & May and Pritchard & Gatliff unite the first two as one species, and the latter authors unite all three.

Our shell is very variable. It may be high and steeply conical, or so depressed as to have only a trace of cavity: rarely thin and delicate, generally of moderate thickness, sometimes quite solid. The ribs may be as few as 17 or very numerous, distant, or crowded; high, narrow, and sharp-cut, or low, broad, and rude; straight, smooth, and regular, or crooked, rough, irregularly noded, or scabrous. Rarely they are quite colourless, when taken alive; or yellowish, with faint smokiness in the intercostal spaces. They are brown throughout, or with bluish-white ribs and bluish-black between. But all these variations intergrade. It extends all along our coastline.

S. baconi, Reeve.

S. baconi, Reeve, Conch. Icon., 1856, vol. ix., pl. vi., fig. 30; Pritchard & Gatliff, Proc. Roy. Soc. Vict., 1903, vol. xv. (n.s.), part 3, p. 221.

Type loc.—"Swan River."

The three shells from the Cuming Museum in the Natural History Museum (Brit. Mus.), London, from Swan River, labelled *S. baconi*, Reeve, are similar to ours. It was given in Adcock's Handlist, No. 455, as *S. luzonica*, Reeve: but the types of this species, and from which his figures were drawn, are from the Philippine Islands, and have only 9 to 13 ribs, much stouter than ours. *S. baconi* is probably the species catalogued by Tate & May in their Tasmanian Census as *S. albida*, Angas, in Proc. Linn. Soc. New South Wales, 1901, vol. xxvi., p. 419.

It has been taken from MacDonnell Bay to Streaky Bay, and up St. Vincent and Spencer Gulfs. It is found on the rocks in the South-East, which are completely exposed at low tide, and on the reefs which are not exposed; also on the ocean shore, subject to the rough seas from the break of the rollers, and the smooth water in the quiet bays and gulfs. The shells appear to be larger in the rougher South-East than in quiet places like Hallett Cove, etc. The size may reach 30 mm. by 23 by 5.5. They are very flat, as low as 4.75 mm. in a shell of 25 mm., the greatest height being 6 mm. in a shell of 20 mm. They are mostly roundly elliptical, rarely nearly circular, more rarely oblong-elliptical. Usually they are quite thin, but those from rough water may be very solid. Generally much eroded, especially when senile, they may show no sculpture. There may be only 17 to 20 ribs standing up validly above all secondary riblets, or there may be 44 nearly equal radii. Their colour is a dull white, rarely yellow. In some, especially in juveniles, or the earlier portions of mature ones, and in the thinner forms, tiny blackish or brownish spots may be scattered about irregularly, sparsely, or abundantly, or they may form clouds, rings, or patterns. The interior is quite white, the horseshoe amber-coloured. Sometimes within the horseshoe, and in a depression in front of it, and along the siphon furrow, is a fuscous clouding. The animal is of a light saffron-yellow colour.

S. albida, Angas.

S. albida, Angas, Proc. Zool. Soc., Lond., 1878, p. 314, pl. xviii., figs. 16, 17; Adcock, Handlist, etc., 1893, p. ii., No. 456.

Type loc.—St. Vincent Gulf, South Australia.

I examined the shell at the Natural History Museum (Brit. Mus.), London, in 1899. It was mounted as "Type

Adelaide." I could not match it; it is more conical than any *S. baconi*, Reeve, I had or have since obtained. It is very thin, but is evidently not a worn shell, and is very glistening internally. It must be an extreme variant if it be *S. baconi*. May it be an albino of one of the forms of *S. diemenensis*, Quoy?

***S. zonata*, Tenison Woods.**

S. denticulata, Quoy & Gaimard, var. *tasmanica*, Ten. Woods, Proc. Roy. Soc. Tasmania, 1877, p. 54; *S. zonata*, Ten. Woods, *op. cit.*, 1878, p. 99, and p. 47; Pritchard & Gatliff, Proc. Roy. Soc. Vict., 1903, vol. xv. (n.s.), part 3, p. 221.

It was listed by Tate and May in their Census for Tasmania, as *S. tristensis*, Sowerby, in Proc. Linn. Soc. New South Wales, 1901, vol. xxvi., pt. 3, p. 419, by misidentification.

It is found at MacDonnell Bay on the rocks above low water, and at Beachport, mostly much eroded. But perfect specimens may attain full size of 22.5 mm. by 19.5 by 9, and may show a perfect protoconch of a deep brown colour, hooked backwards, and spirally curved, with the nucleus of a deep amber tint deviated to the left, on which side alone its two whorls, quite distinct, smooth, round, and slightly elate, are visible.

***S. stowæ*, Verco.**

S. stowæ, Verco, Trans. Roy. Soc. South Austr., 1906, vol. xxx., p. 223, pl. viii., figs. 3 to 8.

Type loc.—Pondolowie Bay, Spencer Gulf. The habitat has not been extended beyond Encounter Bay.

Family GADINIIDÆ, Gray.

Genus GADINIA, Gray, 1824.

***G. angasi*, Dall.**

Gadina conica, Angas, Proc. Zool. Soc. Lond., 1867, p. 115, No. 27, pl. xiii., fig. 27. *Type locality*, "Port Jackson Heads (Coll., Angas)"; also p. 220, No. 221, "Coodjee Bay."

Gadina angasi, Dall, Amer. Jour. Conch., 1870, vol. vi., p. 11; Pritchard & Gatliff, Proc. Roy. Soc. Vict., vol. xv. (n.s.), part 3, p. 222, "Portsea, Port Phillip; Western Port."

Taken on the ocean beach at Port MacDonnell, Beachport, and Robe, not rare, and in good condition (Verco); Head of Great Australian Bight (Tate); Rosetta Head, Encounter Bay (Tate).

Family MODIOLARCIDÆ, Gray.

Genus MODIOLARCA, Gray.

***M. tasmanica*, Beddome.**

Modiolarca tasmanica, Beddome, Proc. Roy. Soc. Tasmania, 1881, p. 168; Cloudy Bay, South Bruni Island, and off Brown's River; Tate & May, Proc. Linn. Soc. N.S. Wales, vol. xxvi., 1901, p. 439, Text, fig. 12.

It was found by me in Guichen Bay, in a small sandy cove between two rocky prominences, which projected into the sea. Just beyond the margin of the receding wave it formed an abundant dark reddish-brown shifting sediment, with tiny fragments of brown seaweed. It was scooped up in hundreds with a spoon, mixed with *Philippiella crenatulifera*, Tate, and *Neolepton rostellatum*, Tate. It had not previously been recorded for South Australia. It was taken also in Lacepede Bay in numbers, and in small quantity at MacDonnell Bay.

Family MYTILIDÆ, D'Orbigny.

Genus MODIOLA, Larnarck.

M. linea, Hedley.

Modiola linea, Hedley, Records of the Austr. Mus., vol. vi., part 4, 1906, p. 300, pl. lvi., figs. 23, 24, 25.

Type loc.—80 fathoms off Narrabeen, New South Wales.

Dredged, 104 fathoms, 35 miles S.W. of Neptune Islands, 34 valves, 1 alive (Verco).

Family LEPTONIDÆ, Gray.

Genus NEOLEPTON, Monterosato.

N. rostellatum, Tate.

Kellia rostellata, Tate, Trans. Roy. Soc. South Austr., 1888 (1889), vol. xi., p. 63, pl. xi., fig. 14. *Type loc.*, Port Phillip Heads, Victoria, dredged alive, 7 to 9 fathoms, attached to seaweed; Tate & May, Proc. Linn. Soc. N.S. Wales, 1901, vol. xxvi., p. 432, King Island.

Neolepton rostellatum, Tate, Hedley, Proc. Linn. Soc. N.S. Wales, 1905 (1906), vol. xxx., part 4, p. 542, pl. xxxi., figs 3, 4.

Taken in numbers alive at the water's edge in Guichen Bay, also in shell-sand in Lacepede Bay, and at MacDonnell Bay. Not previously recorded for South Australia.

BRACHIPODA.

Cryptopora brazieri, Crane.

Atretia brazieri, Crane, Proc. Zool. Soc., 1886, p. 183.

Cryptopora brazieri, Crane, Hedley, Proc. Linn. Soc. N.S. Wales, vol. xxxi., part 3, p. 467, pl. xxxvi., figs. 1, 2, "Common at 17 to 20 fathoms around Masthead Island, Queensland, on the polyzoan, *Selenaria maculata*, Busk."

Dredged 104 fathoms, 35 miles S.W. of Neptunes, 33 examples; 62 fathoms N.W. of Cape Borda (Verco).

PTEROPODA.

No Pteropods have hitherto been recorded from South Australian waters. The "Challenger," after leaving South Africa, worked in high southern latitudes, then made direct

for Melbourne, and dredged thence to Sydney. Several species belonging to this class were thus listed for the Victorian and New South Wales coasts, but none for South Australia. My dredgings during the last few years off the shores of South Australia have yielded seven species of Pteropods belonging to three different genera. The shallowest water in which they were taken was sixty-two fathoms. They were found at all intermediate depths down to 300 fathoms, which was the limit of my operations. No specimens were taken alive, but only their glass-like shells. I am indebted to Mr. C. Hedley, F.L.S., for their identification. "The Challenger Reports, vols. xix. and xxiii.;" and "The Catalogue of Marine Shells of Australia and Tasmania, pt. 2, Pteropoda, by John Brazier, C.M.Z.S., F.L.S., Australian Museum, Sydney (Catalogue No. 15), 1892," will supply the synonymy of the species and their habitat.

Family LIMACINIDÆ, Gray.

Genus LIMACINA, Cuvier.

L. inflata, D'Orbigny.

Atlanta inflata, d'Orbigny, Voyage dans l'Amerique meridionale, vol. v., p. 174, pl. xiii., figs. 16, 19, 1836.

Station.—62 fathoms, N.W. of Cape Borda, several; 104 fathoms, S.W. of Neptune Islands, many.

Family CAVOLINIIDÆ, D'Orbigny.

Genus CAVOLINA, Abildgaard.

C. trispinosa, Lesueur.

Hyalæa trispinosa, Lesueur, M.S., in de Blainville, Hyale, Dict. d. Sci. Nat., vol. xxii., p. 82, 1821.

Stations.—90 fathoms, off Cape Jaffa, 5 examples, 300 fathoms 10; 100 fathoms off Beachport 1, 110 fathoms several, 150 fathoms 2; 104 fathoms off the Neptunes, many.

C. tridentata, Forskäl.

Anomia tridentata, Forskäl, Descriptiones animalium quæ in itinere orientali observavit, p. 124, 1773.

Stations.—Off Beachport, 110 fathoms, several broken, 150 fathoms, 2 broken; off Cape Jaffa, 130 and 300 fathoms, at each one whole and a few broken; off the Neptunes, 104 fathoms, 2.

C. inflexa, Lesueur.

Hyalæa inflexa, Lesueur, Memoire sur quelques animaux molusques, etc., Nouv. Bull. Soc. Philom., vol. iii., p. 285, pl. iii., fig. 3, 1813.

Station.—Off Neptunes, 104 fathoms, 1.

Family CLIIDÆ.

Genus CLIO, Browne.

C. subula, Quoy & Gaimard.

Cleodora subula, Quoy & Gaimard, Observations Zoologiques faites à bord de l'Astrolabe, Ann. d. Sci. Nat., Ser. 1, vol. x., p. 223, pl. viii., D, figs. 1, 3, 1827.

Stations.—62 fathoms, N.W. of Cape Borda, many; 104 fathoms, 35 miles S.W. of Neptunes, many; 130 fathoms, off Cape Jaffa, 6; 300 fathoms, off Cape Jaffa, very many.

C. pyramidata, Linné.

Clio pyramidata, Linné, Systema Naturæ, Ed. 12, p. 1094, 1767.

Stations.—90, 130, and 300 fathoms, off Cape Jaffa; 104 fathoms, 35 miles S.W. of Neptunes.

C. balantium, Rang.

Cleodora balantium, Rang, Magasin de Zoologie, 1834, pl. xlv.

Stations.—110 and 150 fathoms, off Beachport, several fragmentary; 130 and 200 fathoms, off Cape Jaffa, several fragmentary.

PELECYPODA.

Family CRASSATELLITIDÆ.

Genus CYAMIOMACTRA, Bernard.

C. mactroides, Tate & May.

Cyamium mactroides, Tate & May, Trans. Roy. Soc. South Austr., 1900, vol. xxiv., p. 102. *Type locality*, Tasmania (W. F. Petterd); Tate & May, Proc. Linn. Soc. N.S. Wales, 1901, vol. xxvi., part 3, p. 433, pl. xxvii., fig. 103.

Cyamioactra mactroides, Tate & May, Hedley, Proc. Linn. Soc. N.S. Wales, 1905 (1906), vol. xxx., part 4, p. 541, pl. xxxi., figs. 9, 10, giving variations, figuring shell and hinge, and supplying additional localities, Victoria, N.S. Wales, and Queensland.

Taken in great numbers, alive and dead, in deep water, St. Vincent and Spencer Gulfs (Verco).

C. communis, Hedley.

Cyamioactra communis, Hedley, Proc. Linn. Soc. N.S. Wales, 1905 (1906), vol. xxx., p. 541, pl. xxxi., figs. 11, 12, 13. *Type locality*—Manly Beach, near Sydney (Miss L. Parkes), Port Fairy, Victoria (Whan).

Found in numbers in shell-sand at MacDonnell Bay, and at Guichen Bay (Verco).

Genus *CUNA*, Hedley, 1902.***Cuna delta***, Tate & May.

Carditella delta, Tate & May, Trans. Roy. Soc., S. Austr., vol. xxiv., 1900, p. 102. *Type locality*—Derwent Estuary, Tasmania (W. L. May); Hedley, Records Austr. Mus., vol. iv., No. 1, 1901, p. 23, figs. 5a, b, dredged off N.S. Wales, in 35 fathoms; Tate and May, Proc. Linn. Soc. N.S. Wales, vol. xxvi., 1901, p. 434, pl. xxvii., figs. 100, 101; *Cuna delta*, Tate & May, sp., Hedley, Memoirs Austr. Mus., vol. iv., part 5, 1902, p. 316.

Dredged in deep water, St. Vincent Gulf and Backstairs Passage, several alive and dead (Verco); Aldinga (Kimber).

C. concentrica, Hedley.

Cuna concentrica, Hedley, Memoirs Austr. Mus., vol. iv., 1902, p. 315, fig. 55. *Type locality*—Port Kembla, 63-75 fathoms; Hedley, Records Austr. Mus., vol. vi., part 2, 1905, p. 42, 111 fathoms, off N.S. Wales.

Dredged in 20 fathoms, Backstairs Passage, many examples (Verco).

Family **CONDYLOCARDIIDÆ**, Bernard.Genus **CONDYLOCARDIA**, Bernard.***C. ovata***, Hedley.

Condylocardia ovata, Hedley, Proc. Linn. Soc. N.S. Wales, 1905, part iv., vol. xxx., p. 539, pl. xxxi., figs. 5, 6. *Type locality*—Manly Beach, in shell sand (Miss L. Parkes).

St. Vincent Gulf, deep water, many complete and valves (Verco); identified by Hedley from his type.

C. trifoliata, Hedley.

Condylocardia trifoliata, Hedley, Moll. Masthead Reef, Queensland, part 1, Proc. Linn. Soc. N.S. Wales, 1906, vol. xxxi., part 3, p. 475, pl. xxxvii., figs. 20 to 23. *Type loc.*—Several alive from 17-20 fathoms. Also Middle Harbour, Sydney.

Many were obtained by me some years ago in dredge-siftings from Backstairs Passage and St. Vincent Gulf. Though so minute, less than $1\frac{1}{2}$ mm., the young shells may be found within them.

Family **VENERIDÆ**.Genus **GAFRARIUM** (CIRCE).***G. angasi***, Smith.

Gouldia australis, Angas, Proc. Zool. Soc. Lond., 1865, p. 459; 1867, p. 928.

Circe australis, Angas, Smith, *op. cit.*, 1881, p. 491.

Circe angasi, Smith, Challenger Reports, Zool., vol. xiii., 1885, p. 148, pl. ii., figs. 4 to 4e. *Hab.*—Port Jackson, N.S. Wales, 2 to 10 fathoms.

Gafrarium angasi, Smith, Hedley, Moll. of Masthead Reef, Queensland, Proc. Linn. Soc. N.S. Wales, 1906, vol. xxxi., p. 466.

Dredged alive at 17 fathoms, St. Vincent Gulf and Backstairs Passage, 4; at 18 fathoms, Investigator Straits, one example; at 45 fathoms, east of Neptune Islands, 1, and 4 valves; at 17 and 22 fathoms, many valves; in Spencer Gulf, unrecorded depth, 1 alive, and 6 valves (Verco).

Var.—Only one individual of a pale tint has the typical radial rays; most shells are of a pinkish chestnut, especially at the umbos, disposed in dark and light concentric bands; some are deep reddish-brown at the umbos and along the post-dorsal and ventral margins, and have no concentric bands; others are white.
